

### REMARKS

Claims 3, 5, 6, 13 and 19 have been canceled. Claims 1, 4, 7, 8, 11, 12, 14, 15 and 18 have been amended. Claims 1, 2, 4, 7 through 12, 14 through 18 and 20 remain in the application.

Claims 7, 8, 14 and 15 were objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Accordingly, claims 7, 8, 14 and 15 have been amended and rewritten in independent form to include the limitations of the base claim and any intervening claims. It is respectfully submitted that claims 7, 8, 14 and 15, as amended, are now in a condition for allowance, which allowance is respectfully solicited.

Claims 1, 3, 4, 5, 9, 10, 11, 16 and 17 were rejected under 35 U.S.C. 103 as being unpatentable over West (U.S. Patent No. 4,646,450) in view of Ripka et al. (U.S. Patent No. 5,112,217). Applicants respectfully traverse this rejection.

U.S. Patent No. 4,645,450 to West discloses a system and process for controlling the flow of air and fuel to a burner. The control system 1 is installed onto a dual-burner furnace system 2 having a pair of burners 29a,29b housed in a heater 100. Each of the burners 29a,29b includes a branch air conduit 13a,13b, a liquid fuel branch conduit 49a,49b, and a gaseous fuel branch conduit 78a,78b, respectively, for guiding a flow of air and liquid or gaseous fuel thereto. The control system 1 includes six motor-operated valves 15a,15b,51a,51b, and 80a,80b which are mounted in

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the air conduits 13a,13b, liquid fuel conduits 49a,49b, and gaseous fuel conduits 78a,78b. Each of these valves is electrically connected to a combustion interface controller 23. West does not disclose a radiant heating system having a burner tube interconnecting an inlet end of an elongated radiant heating tube and a housing defining an air tight compartment, a blower for continually forcing air into the air tight compartment, single fuel means disposed in the air tight compartment for providing regulation of fuel to the burner at a plurality of pressures, and temperature means for triggering the predetermined pressures at a plurality of temperature settings.

U.S. Patent No. 5,112,217 to Ripka et al. discloses a method and apparatus for controlling fuel-to-air ratio of the combustible gas supply of a radiant burner. A heating appliance 11 has a combustion chamber 12 within which is mounted a radiant burner 13. Fuel gas is supplied to the appliance 11 via a fuel line 41 and constant flow regulating air box 43 to form a combustible gas that then passes to burner 13 via combustible gas line 44. Combustible gas is drawn into and through the burner 13 and flue gas containing the products of combustion formed by the burner 13 is drawn from the combustion chamber 12 by induction fan 21 driven by a variable speed motor 22 having a motor controller 23. The motor controller 23 controls the speed of the motor 22 and induction fan 21. Because of a regulating valve 42, the flow rate of fuel gas is constant. By varying the speed of the induction fan 21, the total flow rate of combustible gas through the burner 13

can be varied. However, the appliance 11 can be used, with appropriate modifications, with fuel gas regulating valves of other than the constant supply type. Ripka et al. does not disclose a radiant heating system having a burner tube interconnecting an inlet end of an elongated radiant heating tube and a housing defining an air tight compartment, a blower for continually forcing air into the air tight compartment, single fuel means disposed in the air tight compartment for providing regulation of fuel to the burner at a plurality of pressures, and temperature means for triggering the predetermined pressures at a plurality of temperature settings.

In contradistinction, claim 1, as amended, claims a demand radiant heating system including an elongated radiant heating tube having an inlet end and an exhaust end, a burner tube connected to the inlet end of the radiant heating tube, a housing defining an air tight compartment connected to the burner tube, a blower for continually forcing air into the air tight compartment, a burner at least partially disposed in the burner tube and having an inlet end to receive air and fuel, means for mixing air and fuel and an exit end for emitting the air/fuel mixture for combustion closely adjacent thereto, single fuel means disposed in the air tight compartment and operatively connected to the inlet end of the burner for providing regulation of fuel to the burner at a plurality of predetermined pressures for demand heating, whereby fuel and air is mixed and burned by the burner to heat the radiant heating tube and exhaust gases exit the exhaust end and temperature

means connected to the fuel means for triggering the predetermined pressures at a plurality of temperature settings. Claim 11 has been amended similar to claim 1, as amended.

None of the references cited teach or suggest the limitations of claims 1 and 11, as amended. Specifically, West '450 merely discloses a system for controlling the flow of air and fuel to a burner but does not disclose single fuel means disposed in an air tight compartment for providing regulation of fuel at a plurality of predetermined pressures at a plurality of temperature settings. Ripka et al. '217 merely discloses an apparatus for controlling fuel-to-air ratio to a radiant burner but does not disclose single fuel means disposed in an air tight compartment for providing regulation of fuel at a plurality of predetermined pressures at a plurality of temperature settings. West '450, neither alone nor in combination with Ripka et al. '217, does not teach or suggest a radiant heating system having a burner tube interconnecting an inlet end of an elongated radiant heating tube and a housing defining an air tight compartment, a blower for continually forcing air into the air tight compartment, a single fuel means disposed in the air tight compartment for providing regulation of fuel to the burner at a plurality of pressures, and temperature means for triggering the predetermined pressures at a plurality of temperature settings as claimed by applicants. Therefore, claims 1 and 11, as amended, and the claims dependent therefrom, overcome the rejection under 35 U.S.C. 103 and are allowable over this rejection.

Claims 2, 12, 18 and 20 were rejected under 35 U.S.C. 103 as being unpatentable over West '450 in view of Ripka et al. '217 as applied to claims 1 and 11, and further in view of Johnson (U.S. Patent No. 4,869,229). Applicants respectfully traverse this rejection.

U.S. Patent No. 4,869,229 to Johnson discloses a burner unit. A burner subassembly 11 includes a burner nozzle 18, a control assembly 20, a front pipe assembly 22 and a rear pipe assembly 24. The control assembly 20 includes a regulator valve 26, a control unit 28 controlling the operation of the valve 26 and a transformer 30. Control assembly 20 is of a known form and may, for example, include a low fire valve, a high fire valve, a gas pressure regulator and a shut-off regulator mechanism. Johnson does not disclose a single fuel means disposed in an air tight compartment for providing regulation of fuel at a plurality of predetermined pressures at a plurality of temperature settings.

In contradistinction, claim 18, as amended, claims a demand radiant heating system including an elongated radiant heating tube having an inlet end and an exhaust end, a burner tube connected to the inlet end of the radiant heating tube, a housing defining an air tight compartment connected to the burner tube, a blower for continually forcing air into the air tight compartment and a burner at least partially disposed in the burner tube. The burner tube has an inlet end to receive air and fuel, means for mixing air and fuel, and an exit end for emitting the air/fuel mixture for combustion closely adjacent thereto. The demand

radiant heating system also includes a single fuel regulator disposed in the air tight compartment and operatively connected to the burner for providing dual regulation of fuel to the burner at a low fuel pressure for low demand heating and a high fuel pressure for high demand heating, and a two-stage thermostat connected to the fuel regulator and having a low demand temperature setting for triggering the low fuel pressure and a high demand temperature setting for triggering the high fuel pressure, whereby fuel and air is mixed and burned by the burner to heat the radiant heating tube and exhaust gases exit the exhaust end.

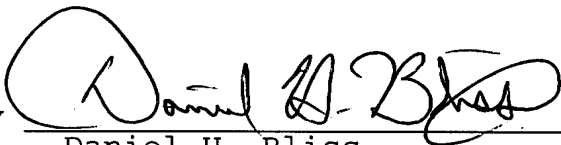
None of the references teach or suggest the limitations of claim 18, as amended. Neither West '450, Ripka et al. '217 nor Johnson '229 teaches or suggests a single fuel regulator disposed in an air tight compartment and a two-stage thermostat connected to the fuel regulator for providing dual regulation of fuel to the burner at a low demand temperature setting and a high demand temperature setting as claimed by applicants. Therefore, it is respectfully submitted that claim 18, as amended, and the claims dependent therefrom overcome the rejection under 35 U.S.C. 103 and is allowable over this rejection.

Claims 6 and 13 were rejected under 35 U.S.C. 103 as being unpatentable over West '450 in view of Ripka et al. '217 as applied to claims 1 and 11, and further in view of Cremers (U.S. Patent No. 5,076,781). Claims 6 and 13 have been canceled and the rejection as to these claims is now moot.

Claim 19 was rejected under 35 U.S.C. 103 as being unpatentable over West '450 in view of Ripka et al. '217 and Johnson '229 as applied to claim 18, and further in view of Cremers '781. Claim 19 has been canceled and the rejection as to this claim is now moot.

The claims, as amended, patentably distinguish over the references cited and are therefore allowable, which allowance is respectfully solicited.

Respectfully submitted,

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